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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/929,708	08/13/2001	Hirohiko Nishiki	SLA 0536	8902

7590

03/17/2004

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EXAMINER

SEFER, AHMED N

ART UNIT	PAPER NUMBER
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2826

DATE MAILED: 03/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/929,708	NISHIKI, HIROHIKO	
	Examiner	Art Unit	
	A. Sefer	2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 20-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendment filed on December 16, 2003 has been entered; no new claims have been added.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 11, 14, 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The limitation “distributing a first pattern of spacers, consisting of non-communicating spacer channels between the spacers...” recited in claims 11, 14, 16 is not disclosed in the specification to enable one skilled in the art to make and/or use the invention. Without this information it would take undue experimentation to make and use the claimed invention.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

Art Unit: 2826

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

5. Claims 1, 3, 8 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Ge et al. USPN 5,892,558.

Ge et al disclose in figs. 1-8 a method for mounting a flexible substrate during the fabrication of a liquid crystal display (LCD), the method comprising forming a first rigid support substrate 34 selected from glass or plastic (as in claim 8) with trenches 38/102; forming a first flexible substrate 22 selected from metal or plastic (as in claim 9) overlying the first rigid support substrate; injecting adhesive into the trenches of the first rigid support substrate; and curing the adhesive.

As for the purpose of curing the said adhesive (to attach the first flexible substrate to the first rigid support substrate) recited in the claim, it refers to a function. However, a recitation of an intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See In re Casey, 152 USPQ 235 (CCPA 1967) and In re Otto, 136 USPQ 458, 459 (CCPA 1963).

Regarding claim 3, Ge et al disclose (col. 7, lines 1-30) depositing a plurality of patterned circuit films overlying the first flexible substrate, forming TFTs; forming liquid crystal (LC) layer 52 overlying the TFTs; and forming a color filter layer 24 over the LC layer.

6. Claims 1, 2, 5 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsushita et al. USPN 5,459,335.

Matsushita et al disclose in figs. 1-3 a method for mounting a flexible substrate during the fabrication of a liquid crystal display (LCD), the method comprising forming a first rigid support substrate 5 selected from glass (as in claim 8) with trenches (see recessed regions); forming a first flexible substrate 3 overlying the first rigid support substrate; injecting adhesive 4 into the trenches of the first rigid support substrate; and curing the adhesive to attach first flexible substrate to the first rigid support substrate.

As for claim 2, Matsushita et al disclose detaching first rigid support substrate and adhesive from first flexible substrate 3.

As for claims 5 and 6, Matsushita et al disclose in fig. 8 injecting the adhesive in a vacuum environment, wherein the trenches include at least one mouth 14; wherein injecting adhesive into a support substrate trench includes creating a vacuum environment in the support substrate trenches; supplying adhesive 4 to the at least one mouth of the first rigid support substrate trenches; in response to returning the support substrate to ambient pressure, pulling the adhesive into the first rigid support substrate trenches vacuum environment through the at least one mouth.

7. Claims 1 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Oku USPN 5,621,550.

Oku discloses (see figs. 3-5 and col. 5, lines 1-18) a method for mounting a flexible substrate during the fabrication of a liquid crystal display (LCD), the method comprising forming a first rigid support substrate PL1 with trenches (see V-shaped regions); forming a first flexible substrate PL2 selected from plastic (as in claim 9) overlying the first rigid support substrate;

Art Unit: 2826

injecting adhesive TR1 into the trenches of the first rigid support substrate; and curing the adhesive to attach first flexible substrate to the first rigid support substrate.

8. Claims 11, 12, 15, 16 and 18, as understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Matsushita et al. USPN 5,459,335.

Matsushita et al disclose in fig. 3 a method for mounting a flexible substrate during the fabrication of a liquid crystal display (LCD), the method comprising forming a first rigid support substrate 5 selected from glass (as in clam 18); distributing a first pattern of spacers 7, consisting of non-communicating spacer channels between the spacers, overlying the first rigid support substrate; forming a first flexible substrate 3 overlying the first pattern of spacers; injecting adhesive into the spacer channels; and curing the adhesive to attach first flexible substrate to the first rigid support substrate.

As for claim 12, Matsushita et al disclose detaching first rigid support substrate and adhesive from first flexible substrate 3.

As for claims 15 and 16, Matsushita et al disclose in figs. 8 and 9 injecting the adhesive in a vacuum environment, wherein the spacer channels include at least one mouth 14; wherein injecting adhesive into a spacer channels includes creating a vacuum environment in the spacer channels; supplying adhesive 4 to the at least one spacer channel mouth; returning the first rigid substrate to ambient pressure; and in response to returning the support substrate to ambient pressure, pulling the adhesive into the spacer channels vacuum environment through the at least one mouth.

9. Claims 11 and 19, as understood, are rejected under 35 U.S.C. 102(e) as being anticipated by Lovas et al. USPN 6,290,793.

Art Unit: 2826

Lovas et al disclose (see fig. 3 and col. 4, lines 38-67) a method for mounting a flexible substrate during the fabrication of a liquid crystal display (LCD), the method comprising forming a first rigid support substrate 340; distributing a first pattern of spacers 320, consisting of non-communicating spacer channels between the spacers, overlying the first rigid support substrate; forming a first flexible substrate 330 selected from plastic (as in claim 19) overlying the first pattern of spacers; injecting adhesive into the spacer channels; and curing the adhesive to attach first flexible substrate to the first rigid support substrate.

10. Claims 11, 13 and 18, as understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Tsubota et al. USPN 5,629,787.

Tsubota et al disclose (see figs. 5-7 and 24 and col. 5, lines 10-27) a method for mounting a flexible substrate during the fabrication of a liquid crystal display (LCD), the method comprising forming a first rigid support substrate 3/204 selected from glass (as in claim 18); distributing a first pattern of spacers 5/208, consisting of non-communicating spacer channels between the spacers, overlying the first rigid support substrate; forming a first flexible substrate 2/206 overlying the first pattern of spacers; injecting adhesive 5/205 into the spacer channels including injecting the adhesive in a vacuum environment (as in claim 15); and curing the adhesive to attach first flexible substrate to the first rigid support substrate.

As for claim 13, Tsubota et al disclose depositing a plurality of patterned circuit films overlying the first flexible substrate, forming TFTs 11; forming liquid crystal (LC) layer 6 overlying the TFTs; and forming a color filter layer 15 over the LC layer.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 4, 7, 14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsushita et al. in view of Pai et al. USPN 6,612,888.

Matsushita et al disclose the method for mounting a flexible substrate during the fabrication of a liquid crystal display (LCD) as recited in the claim, but do not specifically disclose supplying an N (2) atmosphere at ambient pressure.

Pai et al disclose (see figs. 5-8, col. 2, lines 63-67, col. 3, lines 1-20 and col. 5, lines 1-33) method for mounting a flexible substrate during the fabrication of a liquid crystal display (LCD) including supplying an N (2) atmosphere at ambient pressure.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teachings of Pai et al since that would eliminate the formation of air bubbles which affect the performance of the device as taught by Pia et al.

As for claims 4 and 14, it would have been obvious to form said second flexible and rigid substrates and injecting and curing said adhesive, since it has been held that mere duplication of the essential working parts of a process involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

13. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsushita et al in view of Matsui et al. USPN 6,191,007.

Art Unit: 2826

Matsushita et al disclose the method for mounting a flexible substrate during the fabrication of a liquid crystal display (LCD) as recited in the claim, but do not specifically the steps of forming said support substrate with trenches.

Matsui et al discloses in 107 (see fig. 107 and col. 25, lines 19-31) a support substrate with trenches including forming a rigid support 802 with a top surface; forming a photoresist pattern 807 with openings exposing the underlying support substrate top surface; etching the exposed support substrate top surface to form the trenches 821 in the support substrate; and removing the photoresist.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teachings of Matsui et al since that would increase uniformity as taught by Matsui et al.

NATHAN J. FLYNN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Sefer whose telephone number is (571) 272-1921.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272-1915.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2800.

ANS
February 27, 2004